

Sergey Blagodurov

Contact information: mailto: blagodurov@gmail.com
 web: <https://blagodurov.net>

Professional experience:

2013 – **Principal Engineer, Tech Lead**

present [Advanced Micro Devices \(AMD\) Research](#) – *Seattle, WA*

I lead the team that redesigns datacenters for the [Composable](#) era.

2010 – 2013 **Research Associate**

[Hewlett-Packard Laboratories](#) – *Calgary, Canada*

Under the careful guidance of [Martin Arlitt](#) and [Daniel Gmach](#), I worked on a few projects:

3. [Net-Zero Energy Data Center](#) which has made headlines at [InfoWorld](#), [Silicon Republic](#), [The Register](#).
2. Designing Smart Meter Data Assurance in HPE's Vertica DB, with Tableau visualization.
1. [Improving the Efficiency of Information Collection and Analysis in Widely Used IT Applications](#), now is part of the Bro Network Security Monitor.

2008 – 2010 **Research Fellow, Course Instructor**

Simon Fraser University – *Vancouver, Canada*

2. Created [Clavis](#) and [ClavisMO](#), experimental job schedulers for Linux and Hadoop (C/C++).
1. Conducted labs, marked assignments and exams.

Education:

2008 – 2013 **PhD in Computer Science**

Advisor: [Alexandra \(Sasha\) Fedorova](#)

Simon Fraser University – *Vancouver, Canada*

Thesis: [Addressing shared resource contention in datacenter servers](#)

Selected for the Dissertation showcase at SuperComputing 2013.

Thesis summary:

Servers are major energy consumers in datacenters. Much of that energy is wasted because programs compete for shared resources and suffer severe performance penalties due to resource contention. My Thesis addresses the contention problem.

GPA: 4.05 (out of 4.33)

2002 – 2008 **BSc and MSc with Honors in Computer Engineering**

Moscow Engineering Physics Institute (State University) – *Moscow, Russia*

GPA: 5.00 (out of 5.00)

Professional certification completed:

[C3] Oracle PL/SQL Developer Certified Associate

[C2] ABBYY FormReader Enterprise Certified Administrator, ABBYY FlexiCapture Certified Programmer

[C1] Certificate Program in University Teaching and Learning, Instructional Skills Workshop at SFU

Peer-reviewed publications:

Google Scholar citations: [3658](#).

- [P20] Jinyoung Choi, Sergey Blagodurov, Hung-Wei Tseng, [Dancing in the Dark: Profiling for Tiered Memory](#), in *IPDPS* 2021. Acceptance rate 23%.
- [P19] Thaleia Doudali, Sergey Blagodurov, Abhinav Vishnu, Sudhanva Gurumurthi, Ada Gavrilovska, [Kleio: a Hybrid Memory Page Scheduler with Machine Intelligence](#), in *HPDC* 2019. Acceptance rate 21%. **Best Poster award, Best Paper nominee.**
- [P18] Amro Awad, Arkaprava Basu, Sergey Blagodurov, Yan Solihin, Gabriel Loh, [Avoiding TLB Shootdowns through Self-invalidating TLB Entries](#), in *PACT* 2017. Acceptance rate 23%.
- [P17] Amro Awad, Sergey Blagodurov, Yan Solihin, [Write-Aware Management of NVM-based Memory Extensions](#), in *ICS* 2016. Acceptance rate 24%.
- [P16] Sergey Blagodurov, Alexandra Fedorova, Evgeny Vinnik, Tyler Dwyer, and Fabien Hermenier, [Multi-Objective Job Placement in Clusters](#), in *SC* 2015. Acceptance rate 22%.
- [P15] Mitesh Meswani, Sergey Blagodurov, David Roberts, John Slice, Mike Ignatowski, Gabriel Loh, [Heterogeneous Memory Architectures: A HW/SW Approach for Mixing Die-stacked and Off-package Memories](#), in *HPCA 2015*. Acceptance rate 23%. **Best Paper nominee.**
- [P14] Sergey Blagodurov, Daniel Gmach, Martin Arlitt, Yuan Chen, Chris Hyser, Alexandra Fedorova, [Maximizing Server Utilization while Meeting Critical SLAs via Weight-Based Collocation Management](#), in *IM* 2013. Acceptance rate 27%. **This work is part of HP's Net-Zero Energy Data Center architecture, which was named a 2013 Computerworld Honors Laureate.**
- [P13] Martin Arlitt, Cullen Bash, Sergey Blagodurov, Yuan Chen, Tom Christian, Daniel Gmach, Chris Hyser, Niru Kumari, Zhenhua Liu, Manish Marwah, Alan McReynolds, Chandrakant Patel, Amip Shah, Zhikui Wang, Rongliang Zhou, [Towards the Design and Operation of Net-Zero Energy Data Centers](#), in *ITherm* 2012.
- [P12] Tyler Dwyer, Alexandra Fedorova, Sergey Blagodurov, Mark Roth, Fabien Gaud, and Jian Pei, [A Practical Method for Estimating Performance Degradation on Multicore Processors and its Application to HPC Workloads](#), in *SC* 2012. Acceptance rate 21%.
- [P11] Sergey Zhuravlev, Juan Carlos Saez, Sergey Blagodurov, Alexandra Fedorova, and Manuel Prieto, [Survey of Energy-Cognizant Scheduling Techniques](#), in *IEEE TPDS*, 24(7), pp. 1447-1464. July 2013. Impact Factor: 2.8.
- [P10] Sergey Blagodurov, Sergey Zhuravlev, Mohammad Dashti, and Alexandra Fedorova, [A Case for NUMA-aware Contention Management on Multicore Systems](#), in *USENIX ATC* 2011. Acceptance rate 15%.
- [P9] Sergey Blagodurov and Alexandra Fedorova, [User-level scheduling on NUMA multicore systems under Linux](#), in *Ottawa Linux Symposium* 2011.
- [P8] Sergey Zhuravlev, Juan Carlos Saez, Sergey Blagodurov, Alexandra Fedorova, and Manuel Prieto, [Survey of Scheduling Techniques for Addressing Shared Resources in Multicore Processors](#), in *ACM CSUR*, vol. 45, issue 1 (Article 4), November 2012. Impact Factor: 7.6.
- [P7] Sergey Blagodurov and Martin Arlitt, [Improving the efficiency of information collection and analysis in widely-used IT applications](#), in *ICPE* 2011, Industrial Applications and Experience track.
- [P6] Sergey Blagodurov, Sergey Zhuravlev, and Alexandra Fedorova, [Contention Aware Scheduling on Multicore Systems](#), in *ACM TOCS*, vol. 30, issue 4, December 2010. Impact Factor: 2.3.

- [P5] Sergey Zhuravlev, Sergey Blagodurov, and Alexandra Fedorova, [AKULA: A Toolset for Developing Scheduling Algorithms on Multicore Systems](#), in *PACT* 2010. Acceptance rate 17%.
- [P4] Juan Carlos Sáez, Manuel Prieto Matias, Alexandra Fedorova, Sergey Blagodurov, [A Comprehensive Scheduler for Asymmetric Multicore Systems](#), in *EuroSys* 2010. Acceptance rate 19%.
- [P3] Alexandra Fedorova, Sergey Blagodurov, and Sergey Zhuravlev, [Managing Contention for Shared Resources on Multicore Processors](#), invited to *Communications of the ACM*, vol 53, issue 2, February 2010. Impact Factor: 2.3.
- [P2] Sergey Zhuravlev, Sergey Blagodurov, and Alexandra Fedorova, [Addressing Shared Resource Contention in Multicore Processors via Scheduling](#), in *ASPLOS* 2010. Acceptance rate 17%.
- [P1] Daniel Shelepov, Juan Carlos Saez, Stacey Jeffery, Alexandra Fedorova, Nestor Perez, Zhi Feng Huang, Sergey Blagodurov, Viren Kumar, [HASS: A Scheduler for Heterogeneous Multicore Systems](#), in *ACM Operating Systems Review*, vol. 43, issue 2, April 2009. Impact Factor: 2.5.

37 granted patents:

[US11880312](#), [US11868778](#), [US11860755](#), [US11756606](#), [US11720279](#), [US11709745](#), [US11677813](#), [US11663073](#), [US11656796](#), [US11586539](#), [US11526449](#), [US11398831](#), [US11385983](#), [US11341059](#), [US11237928](#), [US11150899](#), [US11064019](#), [US10761986](#), [US10678702](#), [US10592279](#), [US10318340](#), [US10318153](#), [US10261916](#), [US10235290](#), [US10171382](#), [US10121555](#), [US10073746](#), [US10055359](#), [US10019283](#), [US9983655](#), [US9965329](#), [US9934148](#), [US9916265](#), [US9594521](#), [US9178763](#), [US9104498](#), [CN103959190B](#).

Service:

- [S3] Program Committee: ASPLOS'25,'23; ISCA'23,'22; EuroSys'23,'20; SIGMETRICS'22; USENIX ATC'20.
- [S2] Expert reviewer: Canada's NSERC, IEEE Access'21; IEEE CompArch Letters'20,'15; IEEE TC'18,'14; ACM TOMPECS'18,'14; SPEC Distinguished Dissertation Award'17; MASCOTS'17; ACM TAAS'17; ACM TOPC'16-'14; Euro-Par'15; IEEE TPDS'13,'11; Springer CS'11; PPOPP'11; PACT'10.
- [S1] Membership chair of the [IEEE Computer Society's STC on Sustainable Computing](#):
- Developed and successfully executed plan to reach 400 unique members.
 - Created automated membership tracking (the [source](#) is on GitHub).

Volunteering:

[The Center for Wooden Boats](#) (Seattle)

Hobbies:

 [Competitive dragon boating](#)

References:

Alexandra Fedorova
Associate Professor
UBC
sasha@ece.ubc.ca

Gabriel Loh
Senior Fellow
AMD Research
gabriel.loh@amd.com

Martin Arlitt
Principal Research Scientist
Micro Focus
martin.arlitt@microfocus.com